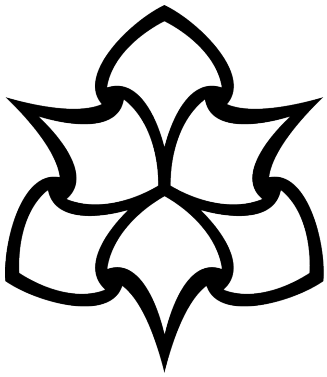

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Rhyme and reason-using poetry to talk to underserved audiences about environmental change

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ABSTRACT

The effects and consequences that environmental change will have on our society are not solely dependent on the ways in which the Earth system responds to anthropogenic effects. They are also affected by the way in which our society decides to mitigate against them. Similarly, the way society reacts to global environmental change is not wholly dependent on the scientists that are observing its effects, but is rather the collective responsibility of everyone that is affected by these observations. However, in raising awareness to engender positive change, it is often the most vulnerable communities that find themselves neglected. This study presents a new approach to discussing environmental change with underserved audiences, via a series of facilitated workshops in which participants were encouraged to engage with experts through the creation of poetry. By analysing these poems through an interpretive phenomenological approach, we demonstrate that this creates a powerful way of generating what underserved audiences really know and think about environmental change, presenting a framework through which to understand *differently*, the lifeworld of these communities.

1. Introduction

The implications of climate change on our environment and society is not solely dependent on how the Earth system responds to changes in radiative forcing; instead it depends on the extent to which humankind responds through changes in their lifestyle, attitude, and policy (Moss et al., 2010). For people to take climate change seriously and support appropriate mitigation and adaptation strategies, they need to be both aware that it is happening, and be certain that it is anthropogenic (Hassol, 2008). Furthermore, in communicating climate change, previous studies indicate that attitudes towards adopting such strategies may be promoted by focusing on the social impacts (Spence and Pidgeon, 2010). However, as noted by Moser (2010), more case-specific research is required in relation to communicating climate change, mainly because there is no 'one-size-fits-all solution,' with different audiences requiring different narratives, frames, media and communicators. Likewise, as discussed by Priest (2016), more work is needed to determine how we can communicate climate change in such a way as to engender positive action amongst the audiences and communities that are being engaged. In particular, more research is needed to determine how to engage with those audiences that are traditionally underserved by public engagement and other science communication activities.

The Wellcome Trust's Review of Informal Science Learning (Lloyd et al., 2012) identified three key underserved audiences in terms of engagement with science: the under 5 s, adults, and disadvantaged groups. Whilst there is a large body of research regarding the communication of climate change to adults (see e.g. Nisbet, 2009a, Webster, 2003) and a smaller, but still significant, body of

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research regarding the under 5 s (see e.g. Tanner, 2010) there is less evidence for strategies on how to engage disadvantaged groups about climate change successfully. This research aims to address this, by focussing on case-specific research for two such groups.

Typically, science communication between scientists (experts) and members of the public (non-experts) is rarely two-directional. A one-directional approach to communicating science and engaging an audience often leaves communities voiceless, disinterested, and discouraged (Fogg-Rogers and Hickman, 2014). For truly two-way dialogue to be established, the experts need to also listen to the non-experts, and to be willing to modify their approaches accordingly. Such an approach has been utilised with great success in communicating and developing medical research through the use of Community-Based Participatory Research (CBPR), which is defined by Green et al. (1995, pp. 4) as an "inquiry with the participation of those affected by an issue for the purpose of education and action for effecting change." This approach presents experts (in this case health professionals and academics) and non-experts (community groups) with the opportunity to generate meaningful dialogue, and has been shown to give underserved and disadvantaged communities a discernible voice, thereby helping to increase the success of any potential intervention (Wallerstein and Duran, 2010).

A CBPR approach to climate change adaptation and mitigation strategies might then yield positive results amongst different community groups. However, the adaptation of such an approach is problematic, as despite the best intentions of researchers, a hierarchy of intellect is often established when people are encouraged to converse on a topic in which there is a perception that one of the parties is an expert and the other is not, as is the case with climate change. What is needed therefore, is the creation of an environment in which these hierarchies can be levelled, allowing non-experts (particularly underserved community groups) and experts to take part in meaningful dialogue about climate change, and through which the understanding and opinions of the non-experts can be fully expressed, an initial step that should ideally be taken before the design and delivery of any potential interventions. Such a step would then help to ensure that those affected were drivers of change rather than recipients of actions to which they had no ownership. Previous research has utilised techniques such as deliberative mapping (Bellamy et al., 2016) and the use of competency groups (Landström et al., 2011) to try to establish such two-way dialogues; here we propose that an alternative approach is through the use of poetry.

Poetry has the potential to build communities and provide shelter for people who otherwise feel isolated. For example, Jack and Illingworth (2017) demonstrated how poetry can be used by student nurses to explore issues in their practice that otherwise go unspoken. Likewise, Furman et al. (2004) investigated how poetry can be used in community practice, exploring how it can be used to foster community development and positive change. Other community engagement projects that utilise poetry include the Talking Wellness projects (Chung et al., 2006), which are designed to develop social capital and enhance community engagement in the African-American community, encouraging participants to reduce the stigma around depression by talking about it. Poetry has also been used to promote social justice (see e.g. Cohen and Mullender, 2006, Foster, 2012), with poetry groups helping participants to address issues of disengagement and helplessness in positive and actionable methods. By working with elderly community groups, Miller and Brockie (2015) demonstrated how analysing poetry can help to enhance understanding of unique experiences during a disaster, and also highlighted the potential to engage a wider audience of policymakers. Poetry has the potential to give people a voice, and to allow for meaningful dialogue to be developed between relatively disparate groups of people. Might it also be a tool for discussing issues relating to climate change; creating an environment in which experts and non-experts can generate meaningful dialogue, through which the needs of the non-experts can be better expressed?

Two different UK community groups were chosen to take part in the study that is presented here: St Luke's TLC in Manchester and Borderlands in Bristol. St Luke's is a charity that offers a range of support, advice and activity for people living with mental health needs, whilst Borderlands works especially with people seeking asylum in the UK or who have become a refugee from other countries. These groups were chosen because they represented two communities that could be considered underserved by science communication efforts, and which were disparate enough to highlight differences in approach that might be necessary to engage with such groups at a case-specific level.

When discussing climate change with non-experts, air quality and environmental health are often raised (along with ozone depletion) as topics of interest. Whilst not technically mapping onto the same causes of climate change (i.e. increased radiative forcing brought about by an upsurge in the amount of anthropogenic greenhouse gases released into the atmosphere), air quality is strongly dependent on weather and is therefore sensitive to climate change (Jacob and Winner, 2009). If air quality and environmental health are issues that community groups want to discuss, then dismissing them out of hand as 'not being relevant to climate change' can be damaging to building trust and encouraging open discussions amongst the groups. Furthermore, as with climate change mitigation and adaptation strategies, the success of any efforts to improve the environmental health of any community are reliant on the translation and communication of these approaches to the communities themselves (Payne-Sturges et al., 2004). For these reasons, the work that is presented here encouraged the participants to determine the direction and focus of the discussions, and as will be seen these discussions often expanded beyond the remit of climate change and included a consideration of air quality and the wider environment. For this reason, an adaptation of the phrase *environmental change* has been utilised for this study.

The work that is presented in this study does not attempt to demonstrate behavioural change amongst its participants, rather it seeks to develop a framework through which experts can engage in a dialogue with underserved audiences about environmental change. It uses poetry to help establish this framework, and presents an interpretation of how we can use this poetry to better understand the audiences, and how they perceive environmental change.

2. Materials and methods

This project involved working with different community members to help establish dialogue with scientific researchers via the

medium of poetry, and to enable the community members to communicate their thoughts and opinions in relation to environmental change. In this study, it is the poems themselves that were used to demonstrate how facilitated workshops could help experts and non-experts establish a dialogue about environmental change, and what this revealed about the understanding and needs of the non-experts in the process.

The experts were recruited via email and personal contacts in the two cities, and ranged from early career scientists to professors; the only proviso was that their research had to involve environmental change in some capacity. The non-experts were recruited by first getting in contact with the volunteers who helped to provide support for the charities (hereafter the support workers). In both instances this involved one main point of contact. Several phone conversations and email exchanges prior to the workshops resulted in suggestions for how best to recruit for the workshops and the logistics of running them. For example, with both groups, it was decided that three consecutive weeks would be best, as it would help to maintain an interest in the subject.

With regards to recruitment, a slightly different strategy was adopted for each of the two groups. However, in both instances passive assent was avoided by using support workers and where necessary translators, and as we were working with potentially at-risk groups, extra care was taken to make sure that the research complied with the Human Rights Act, the Mental Capacity Act, and the Equalities Act. All the participants were given sufficient time to read the consent forms, and nothing was transcribed until the consent forms had been signed, in the presence of SI, and under the strict condition that they were fully understood by the participant. Participants were not coerced into taking part, and the support workers had access to the consent forms prior to the sessions, so that they could explain and translate the aim of the work to the participants, if necessary. The forms were also carefully discussed in the sessions, and the participants were given the option of taking them away to study them further if required.

In the case of St Luke's, they already had a weekly seminar series, with a guest talk followed by a hot meal for the participants. We therefore arranged to come and run the workshops at three of these sessions, which typically lasted for between 60 and 90 min. For the Borderlands group, it was suggested that Monday afternoons would be the best time to run these sessions, immediately after the free English lessons that were also provided by the organisation. As we would be running these workshops outside of the community's normal activities, we were advised to create some flyers (Fig. 1) to advertise them, and to arrive early before the first session so that the workshop facilitator (SI) could be introduced to the community. This latter suggestion was a very good idea, as prior to the first session SI was given the opportunity (in the English language classes) to explain to the community what the purposes of the workshops were. This resulted in a large turnout for the first session of 10 community members, which was very high given that the total number of people in English language lessons that morning had been approximately 30.

For both groups, tea, coffee, and light refreshments were provided to all the participants, and it was made clear throughout that there was no incentive (financial or otherwise) for taking part in the workshops. It was clearly explained several times to all participants that only the poetry that they created would be used in any future study or analysis, and even then, only if they fully consented.

Anonymity was preserved by prescribing a pseudonym to all the poetry. Following this measure there was still the risk that some of the poetry might contain identifying narratives, and so during the analysis, any specific or personal narratives that could be identifying were redacted and destroyed without recording them. The researchers also worked closely with the support workers to ensure that a correct system was established for safeguarding, in relation to any information that may have been revealed during the sessions or from the subsequent analysis of the poetry. During these sessions, and the subsequent analysis, no such information presented itself.

It is important to work with these underserved communities, all of whom are affected by issues of environmental change, because as noted by Wallerstein and Duran (2010) giving these underserved communities a genuine voice means that they are far more likely to adopt any future interventions, e.g. climate change mitigation strategies. Furthermore, engaging with these communities has other benefits as well; from nurturing feelings of belonging and empowerment to developing social and language skills. There is a risk that the audiences that were involved in this study might be perceived as having been chosen for exploitative reasons. However, these audiences were selected because they represent communities that are underserved with regards to the communication of environmental change, and science in general. By working with these communities, the researchers hoped to address this, and by working in

Fig. 1. Flyer to advertise workshops to the Borderlands community group.

tandem with the support workers all participants knew exactly what the study was for, what it entailed, and what their involvement was. All the support workers were made fully aware of the study, and it was made clear to all participants that they could take part in the activities and not have their poetry recorded or subsequently analysed. As such everyone could potentially benefit from these sessions, and the risk of exploitation was significantly reduced. This research project also received full ethics approval via Manchester Metropolitan University's Academic Ethics Committee.

The format of the workshops differed for the two community groups, and was also slightly different each time the sessions were run, as it was dependent on the participants and the ways in which they engaged with the process. In both instances a rough plan was always prepared to fill the allotted time (60–90 min), but this was very flexible and was sometimes completely ignored if the participants wanted to go in a different direction in terms of what they wrote and which topic they wanted to explore. As noted by Merson (2017), in order to allow participants to express their thoughts and needs it is important to listen for and address the felt need of any community, rather than deciding on a topic that the researcher thinks is important and viable. All the participants were also given a workbook, in which they could write their poetry.

Generally, the facilitated workshops at Borderlands were more formal than those at St Luke's, and involved setting a creative writing task and then giving the participants time to respond to that task, before inviting them to read their poetry to the rest of the group and discuss what they had created. These sessions took place in a classroom environment, with everyone sat around one table. The level of English (spoken and written) varied amongst the participants from basic to almost fluent. Because of this, time was often needed to explain certain words and phrases, although there was always at least one participant who could understand and who then explained it to the others in their native language (often Arabic). Google Translate was also extremely useful in this regard. The poetry prompts that were used in these workshops usually involved asking the participants to write list poems or acrostic poems, although in the final session they were encouraged to simply 'write a poem'. In total, there were eleven non-experts and five experts that attended these sessions. Because of work and other commitments, there were only a few non-experts that attended all the sessions (and no experts), but similarly there was only one non-expert (and one expert) who only attended one session, and everybody wrote at least something in their workbooks.

The facilitated workshops at St Luke's were much less formal than those at Borderlands. Part of this was because of the setup of the room, which was an open foyer with some chairs and small round tables; people were still able to write, but in smaller groups. In addition to this, the sessions had between 10 and 20 participants, some of which fully engaged with all elements of the workshops, some of which asked questions but did not write poetry, and some of which simply listened. Spoken English was not a barrier to any of the non-expert participants, although some of them had issues with literacy. So that these participants were not excluded, SI and the St Luke's support workers helped to write down some of the poems and ideas of the participants who were willing but unable to contribute as they might have wished. The style of poetry that was written in these poems was also different from those written at Borderlands, as from the first workshop it became evident that the participants were happy to just 'write a poem' about a specific topic, with very little further direction. In total, there were fifteen non-experts and four experts that attended these sessions and wrote at least one poem. Many of the participants attended all the sessions (both experts and non-experts), and there was nobody who attended less than two of them.

In transcribing the poems for analysis, it was not always possible to replicate them exactly as they had appeared in the workbooks, for example where spider diagrams had been created as a method of presenting list poems. Spelling mistakes were also corrected for, but other than that no changes were made to the layout or punctuation. Other than the graphical abstract, no photographs of the original poetry are shown in this study, to preserve the anonymity of the participants.

Interpretive phenomenology is an approach used to explore how people experience the world and uncover the meanings behind such experiences (Taylor et al., 2015). It moves beyond the finding of facts to support our understanding of experiences which are embedded in life practices. This is important, as it enables researchers to answer questions relating to individual experiences, moving away from a homogeneous approach and recognizing that people will experience the world in unique ways. Understanding these lifeworlds is important as they are the way in which people experience the world in which they live. Schutz and Luckmann (1973) describe the lifeworld as our everyday lives, which we experience as real, prior to any reflection or theorization. As researchers, we cannot assume that people will experience climate change in a particular way. Each person's lifeworld contains their subjective experience and is closely linked to cultural, political and social contexts (Leonard, 1999). It is important that we understand people's individual and unique lifeworlds, as it is these which holds meaning to them.

Interpretive phenomenology was chosen for this analysis of the poems, as it helped us to explore the lifeworld of the participants, through their writing, and in doing so enabled us to better understand the complexity of their experiences of environmental change. Cohen et al. (2000) describe phenomenology as a means of providing answers to important questions and as a means of better understanding deep human concerns, therefore it seemed like a fitting approach for this globally important subject. In constructing their poetry, the participants themselves were being asked to carry out a form of interpretative phenomenology; making sense of environmental change given their own personal histories and context. Utilising an interpretive phenomenology in our analysis then supported our understanding of the ways in which these changes were lived by the participants in this study, so we could reach a different understanding of the phenomenon as it was experienced by them. Similarly, our own research backgrounds enabled us to perform an analysis that was reflective of the approach adopted in the facilitated workshops, as one of us is an expert in the field of environmental change (SI) whereas the other (KJ) has a non-expert view.

Using our existing views on climate change to inform data analysis is a strength of the research. Our current understanding of the subject is important as it has an effect on our views of climate change in the future. Understanding is subsequently developed when we examine our own position and that of the 'text', in this case, the poems, in what Gadamer (1989, pp. 302) terms as a "fusion of horizons." The aim of this style of research is not to 'know more' but understand *differently*, the lifeworld in question. Combining our

own views with those of the participants will lead to a different understanding of the issues raised by underserved audiences. When reaching conclusions about the meaning of the texts, we accept that readers might agree or disagree with the interpretation we have reached. This interpretive work is based on the view that there is more than one 'truth' to be revealed. As such, rather than offer multiple interpretations of the poems presented, which would in any case be influenced by our own existing views, we leave the reader to draw their own conclusions about their meanings. This is in keeping with the research approach, which challenges the existence of an independent truth and suggests that 'reality' is bound to time, culture and context and as such, is ever changing."

The poems were read and re-read by each researcher and then discussed. We individually chose poems and for KJ, working from a non-expert perspective, these were the ones she felt conveyed the most emotion, such as anger, humour or sadness. For SI, working as an expert who had also facilitated the sessions in which the poems were written, he chose poems that best offered an insight into how the participants made sense of environmental change given their own personal histories and experience as context. On coming together to discuss the poems, there was some overlap in our choices and these were discussed until mutual consensus was reached about the sample to be included in the interpretation, with five poems being selected for this purpose. These poems were then further discussed until agreement was reached about the meaning of each piece.

The use of an interpretive phenomenology supports the inclusion of the poems as complete pieces, rather than as segments. When treating poetry as data, there is the risk of missing strong imagery and meaning during the analysis if the poems are split into component parts. Furthermore, reading lines in isolation can lead to misunderstandings and missing context. We also include the poems in their original format, so that readers are left to decide the meanings of the poems for themselves, incorporating their own background and past experiences in this process. Finally, we agree with Shapiro (2004) in her assertion that when using poems as data, to break them up into individual segments for the purposes of research is tantamount to aesthetic murder.

3. Poetry and discussion

The poems that were eventually chosen for analysis represent a broad range of styles and authors. Of the five poems that were selected, four of them were written by participants from St Luke's and one of them was written by a participant from Borderlands. This was not a deliberate decision, and no preference was given to either of the community groups in the selection process; these just happened to be the poems through which there was the greatest congruence in our initial selections, i.e. these were the poems that both SI and KJ had selected using the methodology described in the previous section. It is perhaps the more informal nature of the St Luke's sessions that resulted in a larger proportion of these poems being selected in this manner, however there are too many variables between the two groups, experts, facilitators and authors of this paper to say this for certain. Some of these poems are playful, some are angry, some are hopeful and some are upsetting. All of them are authentic, and all of them were written by real people, something which we encourage you to remember in your reading of them, and in our subsequent analysis.

Poem 1

Perhaps of potential energy
Of greenhouse
Or things God knows

This poem was written as a response to the prompt 'What is Climate Change', and was written by a Somalian refugee from the Borderlands group with a basic to intermediate grasp of English. It took him about 15 min to write and involved the use of Google Translate. The opening line conveys that the author probably has a good understanding of the topic, as potential energy plays a prominent part in climate change. For example, the Global Warming Potential (GWP) is a measure of how much energy the emissions of one ton of a gas will absorb over a given period (Lashof and Ahuja, 1990), providing a common unit of measurement which allows emissions estimates from different greenhouse gases to be compared. Similarly, recent research (Pan et al., 2017) has shown that global warming is causing the efficiency of the Earth's atmosphere to change, meaning that more potential energy is being converted into kinetic energy, resulting in a greater potential for destructive storms and other extreme forms of environmental change. Whilst it may be unrealistic (although not impossible) for the author of this poem to be aware of such recent research, the combination of the first two lines strongly suggest that the author is aware of climate change at more than just a cursory level of understanding.

If the first and second lines of the poem conveys an acknowledgment and understanding of the processes involved in climate change, the third line perhaps sums up the author's feeling of Science vs God. Is environmental change due to the use of fuels and greenhouse gases? Or is it beyond our control and about God, and what He knows about us. Is God repaying us for doing the wrong thing to the planet? In which case, does this absolve us from taking responsibility because it is all in His hands now? Alternatively, does this third line simply indicate that there are still many unknowns surrounding climate change? Either way, this poem highlights a key point: how much understanding is necessary for us to take responsibility and to act?

What this poem does not capture is the delight that was evident in the author's face when they were able to communicate their thoughts on this topic. This poem led to a prolonged discussion between the facilitator, the experts and the non-experts about the non-experts' understanding of environmental change and global warming. Through this discussion, it was revealed that this is a subject that the non-experts are very aware of (lending further credence to our analysis of this poem), having been taught it at school and experienced it on the farms of their parents and grandparents. They also revealed that it was a topic that was more frequently discussed in the UK than in their homelands, but that they felt unable to join in with these conversations because of the complexity of the vocabulary that was required, and as a result they were unable to take responsibility for enacting positive change.

Poem 2

Here comes a flood
There'll be lots of blood
It'll be no good
We'll stick in the mud
On July 18th 1964
Flood came through the door
It rained cats and dogs
And maybe even frogs
Floods make a mess
You're waterlogged I guess

This poem was written by a non-expert from the group at St Luke's, and was written as a response to the prompt 'Write a poem about flooding.' The prompt itself was used as many of the participants in this group had written about floods in earlier poems and warm-up exercises, and it was clear that this was an issue that needed to be discussed. The effect of flooding on the public is something that has a long historical precedence in Manchester (see e.g. Piatt, 2002), especially given the Boxing Day floods of 2015 (Barker et al., 2016), when large parts of the city and its surrounding areas suffered extensive damage from extended flooding.

The author of this poem talks about floods dating back to the mid 1960s, and then uses language that suggests a resignation, or at least an ambivalence to these events. Through the poem, the author is asking us "What's the point?" The floods will come and cause damage and destruction, and there is nothing that can be done about them. But is that really the case? Members of the public can take several actions to mitigate against flood damage, and yet Bichard and Kazmierczak (2012) found that in a telephone survey of 961 homeowners in England and Wales, the majority of the participants believed that the responsibility of flood protection lay with local and national authorities and were not the responsibility of the individual. As noted by McEwen and Jones (2012, pp. 675), "sustainable flood knowledge, as an aspiration, integrates expert, local and political knowledge to build community flood resilience." However, if non-experts are unwilling to take responsibility then how can this be done?

Bichard and Kazmierczak (2012) also reported members of the public as demonstrating high levels of awareness about flooding, further evidenced here by the reference to the flash floods of 1964 that brought destruction to large parts of East Lancashire. Both of us were unware of this event until after reading the poem, which is demonstrative of the fact that non-experts can often provide local, tacit knowledge which can be of benefit to the experts. In this specific example, knowledge of these floods and the way in which authorities dealt with the aftermath are vital in helping to develop future communications relating to floods and flood mitigation. In creating this poem, the author has demonstrated that it is not a lack of knowledge of flooding that is stopping them from taking responsibility for future events. Rather, they express an inevitability that is beyond their control. This would suggest that for greater buy-into flood protection schemes, local authority groups would be better off communicating what *can* be done to mitigate future floods, rather than concentrate purely on the potential severity of these events. This supports other studies (see e.g. O'Neill and Nicholson-Cole, 2009) which suggests that fearful representations of environmental change are in fact counterproductive when trying to enact positive behavioural changes.

Poem 3

Manchester's polluted
With dickheads, shit and piss
And all kinds of waste
I'll give it a miss
I'll go to the Pennines
So I can breathe
Manchester's a place
I want to leave

This poem was written by a non-expert from the group at St Luke's, as a response to a prompt about pollution in Manchester. The reason for this prompt was because after indicating that they wanted to discuss pollution in Manchester, SI brought in a pollution map

Fig. 2. Map of pollution measurements across Manchester on 28th March 2017. Low is 0, high is 10, and the red star indicates the location of St Luke's TLC. This image was created using Google Earth™, and data provided by the Department for Environmental Food and Rural Affairs (https://uk-air.defra.gov.uk/latest/google-earth).

(see Fig. 2) corresponding to the daily pollution levels over the region of Manchester in which St Luke's is situated, which indicated that the pollution in that area was low. Many of the participants disagreed vehemently with this, and wrote poems to express their disagreement, all with the title 'Is Manchester Polluted?' Poem 3 and Poem 4 were both written during this session.

In contrast to the previous two poems this poem speaks of action; the author is going to flee Manchester and head to the hills, to escape the pollution. However, pollution in this sense goes beyond the scientific definition, and extends to people who live in Manchester. This is an angry poem and seems to be directed at people, who are described as 'all kinds of waste'. We are left guessing who the 'dickheads' are, but this word is linked to 'shit and piss', so perhaps the author is talking about drunk people, who might urinate on the streets, or homeless people, who might not have anywhere to go. This poem highlights that environmental change is not the sole issue in people's lives, nor is it seen as the greatest danger/threat/annoyance for many members of the public, supporting previous studies (e.g. Lorenzoni et al., 2007), which indicate that health, security and other social issues are perceived as being more important than environmental issues.

Interestingly this poem has parallels with the Manchester-born poet William Wordsworth, who was so horrified by the pollution of his home city that he fled the city in despair, taking refuge in the Lake District (Connerade and Illingworth, 2017) as opposed to the Pennines that the author of this poem seeks refugee in. This poem also raises the broader issue of inequality and environmental change, and highlights how addressing this issue of inequality is vital in determining who it is that decides who can and cannot escape (Roberts, 2001).

Poem 4
I've never seen pollution
Never noticed it
It's always been here
But I'm unaware of it
Just breathing it in

As with Poem 3, this poem was written by a non-expert from the group at St Luke's, as a response to a prompt about pollution in Manchester. However, whilst the author in Poem 3 was annoyed and upset at Manchester, they acknowledged that they could leave; in contrast this author implies that they are trapped by a harm that they cannot even see. The author is a victim to pollution and they can't do anything about that fact. The author in this poem points to the same despondency that is evident in Poem 2, but to an even greater extent. The floods of Poem 2 were at least tangible, real things that could be seen and the fallout from which could at least be acknowledged. In this poem, the author consigns themselves to the fact that not only are they unable to stop breathing in pollution, but they hadn't even realised it was there, they were just breathing it in without knowing.

Both Poem 3 and Poem 4 elicit feelings of escape, potentially to a rural setting where the atmospheric pollution might be perceived as being lower. Over 53% of the of the world's population now live in urban settlements (The World Bank, 2017), stemming from a rapid, and often unplanned, urban growth that is associated with environmental conditions that outstrip service capacity and place human health at risk (Moore et al., 2003). However, is it true that urban environments are more polluted than rural ones? This is an area of research that needs further detailed study, as there are many factors to consider, not least geographical location, population density, and type of pollution. It is certainly not the case that rural areas are always less polluted than their urban counterparts, with research conducted by Hendryx et al. (2010) indicating that rural areas in the United States had significantly greater exposure to potential agriculture-related pollution.

If we are serious about individuals responding to environmental change, then Poem 4 would indicate that the first challenge that we face is making sure that *everyone* is aware of both the direct and indirect risks that are posed by environmental change, and that this is a complex problem that cannot simply be escaped. By running away from this problem (as the author of Poem 3 wishes to do), we are not only diminishing our responsibility for others but we are also jeopardising the safeguarding of our own future health. Poem 4 indicates the vulnerability of the non-expert, and highlights the responsibility of the expert to not only protect and mitigate against the negative outcomes of environmental change, but to also educate others and discuss these changes so that the burden can be better shared and understood.

Poem 5
Plant a tree
Go Barbados and plant
A palm tree
Turn the water off
Drink booze
Take a shower with
Someone else
Take a shower with
Rhianna

This poem was written by a non-expert from the group at St Luke's, as a response to a prompt about what we can do personally to help combat environmental change. It is a witty and slightly ascetic commentary on how we can mitigate environmental change at an individual level. However, the darker side to this piece is that it feels like the author is suggesting that the advice is not achievable. At times the poem feels sarcastic in tone, almost like the author is saying "Yeah, right, like THAT'S going to happen!" Poem 5 indicates a similar despondency to that which is present in Poem 2, but expresses this in a way that is somehow even more hopeless. Flooding in

Manchester is at least something that the author can identify with, but if they feel as though enacting positive environmental change is as likely as having a shower with Rhianna, then this is indicative of a mindset that is not only sceptical to positive change, but resolved to the fact that it simply will not occur.

The author of Poem 5 appears to indicate that whilst changes can be made to offset negative environmental change, they are not achievable by the average person. To the author positive environmental change is not only beyond their reach, it is impossible. Despite notable successes such as the Montreal Protocol (Velders et al., 2007), the author does not appear to have any faith in humanity to enact the changes that are need to protect our environment and planet, either at an individual level or through a more sustained collaborative approach. This would seem to indicate that the author believes that we are beyond hope, with this scepticism a barrier to both engagement and action (Corner et al., 2012). As noted by Kollmuss and Agyeman (2002), pro-environmental behaviour is affected by many different factors, both external (e.g. economic and social) and internal (e.g. environmental knowledge and awareness), and through writing this poem the author has further highlighted how being aware about negative environmental changes does not necessarily equate with wanting, or being able, to offset them.

In reading and analysing these five poems, several themes emerged which were inherent throughout the poetry, centring on issues of responsibility, hopelessness, and trust. Who is responsible for enacting positive environmental change? Is such a change even possible? And who can be trusted to help protect those that are either unaware of the perils of environmental change, or else unable to change their circumstances? These are all questions that have been revealed through the poetry of the participants, and highlight challenges that need to be overcome in the communication of environmental change. Whilst challenges of responsibility, hopelessness, and trust have previously been identified as key issues to be overcome when framing the communication of environmental change (see e.g. Nisbet, 2009b), what this study demonstrates is that the way in which these challenges must be addressed is dependent on the lifeworld of the audience. Whilst several audiences might identify issues of hopelessness in relation to environmental change, the manner in which they are affected by this is case-specific, and need to be treated as such in order to properly understand and address the way in which audiences are affected.

A comparison between the poetry that was written by the experts and that which was written by the non-experts is beyond the scope of this study, whose purpose was to determine the effect to which poetry could help non-experts to express their feelings and needs in relation to climate change. However, the role of the experts in these workshop sessions was essential to the creation of the poetry for two reasons: they could provide answers to any technical questions that the non-experts may have had, and their presence and involvement in the activities and discussions helped both the experts and the non-experts to consider each other's roles. Whilst this may not immediately be present in the poetry that is presented here, another look at these five poems reveals that in each case the author is asking for help, be it through an exploration of who can provide them with the answers in Poem 1, a need to be better informed that is evident in Poem 3, or simply the challenge to provide an achievable solution that is presented in Poem 5. Through our analysis of these poems, it is clear to us that the person that is being asked to provide that help is the expert.

Bringing non-experts and experts together into a single room and asking them to create poetry together empowers the vulnerable to ask for help, and gives those that can enact change an opportunity to think how they can provide it. This approach would seem to engender transformative learning, i.e. learning which fosters critical reflection and can promote a shift in personal worldviews (Kitchenham, 2008), and the opportunity to develop an appreciation of the worldviews of others (Groulx et al., 2017). To demonstrate this fact, a poem that was written by one of the experts as part of the evaluation of the workshops is presented, not for comparative purposes, but to demonstrate the potential for such an approach in helping to engender transformative learning around environmental change:

More of these,
Need more of these.
Kind hearted,
Funny,
Genuinely talented.
We need more of these.
More of these characteristics,
In positions of power,
More of these people,
To while away the hour,
More of these evenings,
Of adding word to rhyme,
More poetry, art and culture,
Filling an academics time.
More of these,
Need more these,
To anyone who'll listen,
Please more of these.

The role of the facilitator in these workshops also needs careful consideration, as their presence is in line with what Vygotsky (1980) terms the 'More Knowledgeable Other (MKO)', i.e. that the social learning and development of the participants is extended by the support of someone who has a better understanding or higher initial ability level than the learner, which in this case was SI. Whilst Vygotsky (1980) was talking about the development of children, the role of the MKO is still relevant here, as for many of the

participants this was a topic that was new to them. In this instance though the MKO was not an expert in climate change whose knowledge of the subject impeded dialogue between themselves and a non-expert audience, but was instead a facilitator with a specialist skillset that enabled the participants to create poetry in a safe environment, and who was then able to use this to facilitate dialogue between the experts and non-experts about environmental change. In this instance, SI's own expert knowledge of climate change was not an essential factor for the workshop delivery, but it provided a useful contrast to the expertise of KJ in terms of the analysis, and enabled the expert/non-expert dialogue that was established during these workshops to continue through to the analysis. As such, for future studies that utilise a similar approach it is recommended that the poetry is analysed from the perspective of both expert and non-expert, although the person(s) conducting the workshops and providing the analysis of the poetry need not necessarily be the same. It is also important to note that in the interpretive phenomenological approach that was adopted there is a risk that our interpretations have misrepresented what was originally meant by the authors. This risk was minimised by ensuring that in the workshops SI discussed the poems that were created with the authors, and indeed these conversations were used to inform SI's analysis. Any future studies should also make sure to take such steps, in order to ensure that the poems are not misrepresented.

To many of the participants in these communities writing poetry was a new concept, with some of the participants claiming to never have written any poetry, some of them having never written anything creative in English, and most them having never been involved in a collaborative writing experience before. Yet, despite this there was very little resistance to the process, and at no point during the workshops did anybody need the concept of a poem explaining to them, aside from an initial translation of the word for some of the community members in the Borderlands group. To us this indicates that poetry has the potential to be an inclusive medium in discussing global, societal issues such as environmental change; and that it has the power to bypass apathy, acknowledge cultural differences, and even transcend language. However, for such poetry to be created it is necessary to create a safe environment that is flexible for the individual and communal needs of each distinct audience.

4. Conclusion

This article has presented the findings of a study that used the construction of poetry to help enable underserved community groups express their needs in relation to environmental change. An interpretive phenomenology has helped us to utilise our experiences and world-views in this analysis, and whilst readers may interpret the poems differently to what we present here, that is to be expected to a certain degree, and as stated previously is one of the main reasons that the poems are presented in full.

A perceived limitation of this study might be that the workshops in which the poetry was written involved only a limited number of participants, and that likewise only a selection of this poetry was analysed in depth using the discussed methodology. However, this is a strength of the study, as it allows for a more in-depth exploration of fewer pieces of data; it is not about understanding *more* but about understanding *differently*, the lifeworld of the participants. Furthermore, we believe that this approach demonstrates an insight into the public perception of environmental change amongst people who have previously been underserved by a communication of its effects, and yet who are potentially most vulnerable to it. Moser (2010) points out that more case-specific research is required in relation to communicating environmental change, and this study demonstrates a novel and inclusive approach to establishing a dialogue that can help to engender transformative learning between both experts and non-experts.

The creation of poetry has enabled the non-experts in this study to express their needs in a safe and supportive environment, and in doing so it has highlighted how responsibility and trust need to be considered when discussing environmental change with underserved audiences. This study has also further highlighted the need for experts to better report their successes in enacting positive change, and in demonstrating how we can make a difference with both an individual and collective response. Additional case-specific studies are needed to further demonstrate the effectiveness of this approach, but the methods, poems and analysis that we present highlight its potential for enabling a better understanding of how different audiences understand and react to environmental change. We finish with a poem from one of the non-experts which we believe highlights the importance of this work:

Everyone has change which is a
Part of life you don't know
What change will bring and you should
Educate yourself about climate ask
Questions.

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Author contributions

SI designed and delivered the workshops, contributed to the analysis of the poetry and co-wrote the paper.
KJ contributed to the analysis of the poetry and co-wrote the paper.

Competing financial interests

The authors declare that there are no competing financial interests.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.crm.2018.01.001.

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